NOTES ON VARIATION IN A NORTH DORSET COLONY OF THE MEADOW BROWN: *MANIOLA JURTINA* L.

By RUPERT D. G. BARRINGTON*

I was fortunate to have, beside our home in North Dorset, a colony of *M. jurtina* which has for several years past produced remarkable numbers of insects, and amongst these some fine varieties. Variation in insects may occur for several reasons, be it environmental, natural mutation of the genes in the reproductive cells (which occurs in one in every 10 million cells on average, regardless of any conditions) or inbreeding. Restricted colonies will inbreed to a greater extent than those that are wide-ranging and this *jurtina* colony was one of the former.

The colony occupied two fields, separated by post and rail fencing, and cut off from surrounding fields by thick hedges of sloe and oak. All surrounding fields are cut each year in June or early July so *jurtina* has no chance of establishing large colonies there. However our fields had not been cut for hay for five or six years by 1983. They are grazed in the winter by horses, and this appears to be beneficial to the growth of wild flowers, because when the fields are marshy (as they are most of the winter), the horses push the grass down into the mud as they walk over it and this prevents it from growing too thickly in the summer, thus allowing a very good growth of wild flowers. The soil is almost pure clay and this is detrimental to the growth of grass in some parts. Grass length in summer varies from ankle height to waist height. This uneven distribution enables the flowers to grow well, the most attractive to *jurtina* being thistles and knapweed. Artificial fertilizers and herbicides have never been used in the fields. Because of these near perfect conditions, *jurtina* is prolific and, due to the small area of the colony (about one acre) and its isolation from any other *jurtina* population of appreciable size, it must have interbred continually, thereby producing varieties regularly.

I first worked the area in 1981 when only one field produced good numbers of insects, as the other field was grazed by horses for much of the year. However, on the 19th July I was casually netting the few *jurtina* in a neighbouring field when I came across a male ab. *postmultifidus*, an aberration first described by the late Major-General C. G. Lipscomb (1980). The aberration is more frequently caught in the female, but this may be due to its being very much less striking in the male. I decided that if I was to see any more, the most likely place to find them would be in our fields. So I crossed over, and within half an hour was rewarded by the

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capture of a fine female from a thistle head. Two days later I took another less extreme female from within five yards of where I took the first female. This I bred from, but the results were inconclusive owing to weakness in the strain.

I did little further collecting there in 1981, but it was with great interest that I awaited the 1982 season, to see if this beautiful aberration would occur again. On the 9th July 1982, I visited the fields despite the fact that the weather was extremely oppressive and there was a constant drizzle. The *jurtina* were lively, as ever, and within a very few minutes I spotted a lovely dark female ab. *postmultifidus* on the ground. It is interesting that *jurtina* is active regardless of most weather conditions – only heavy rain will send it down deep into the grass. In overcast weather, or light rain, it is easily disturbed and flies off with no apparent regard for the conditions which render many butterflies inactive. The next day, after about two hours search, I took a pale, extreme female specimen of the same aberration (fig. 1) Although I did no more collecting there in 1982, it was now obvious that this was a recurrent form in the area.

On the 22nd July I was working a hedge on the opposite side of the village for *Maniola tithonus* L., when I saw five or six *jurtina* on a group of thistles and amongst these was an ab. *postmultifidus*. As I approached, they all flew off in different directions. One landed at my feet, and luckily, it was the aberration. This specimen poses an interesting problem. Did it breed there, or was it a vagrant from my colony? *Jurtina* is well known to be a very local insect. Indeed, Ford (1975) has found it rarely crosses any barrier, be it a hedge or a patch of close-cropped grass. Had this insect originated in my colony, it would have had to have crossed cut fields, gardens and a road. And, although this is possible, our knowledge of the insect's habits makes me think it highly improbable. I believe it bred in the area, and that there is no reason why the aberration should not occur in many of the fields around the village. The colonies are separated only by hedges, so there will be a limited gene-flow between them. But as all these fields are cut or well grazed, their *jurtina* colonies are so small that ab. *postmultifidus* will be of very much rarer occurrance there than in our fields.

In 1983 I was able to work the fields thoroughly for five days. The one which had been so good in 1981 and 1982 had not been grazed in the winter and so the grass had grown very tall and thick thus making it less easy to work and, I think, there were fewer *jurtina* there. The other field which was of little use in 1981 and 1982 was untouched during the winter of 1982 and early summer of 1983, so grass and flowers grew well making a magnificent area for *jurtina*. I made no attempt to calculate the overall size of the colony, but between 1981 and 1983 the strength of this colony increased very markedly, and in 1983 *jurtina* was there in phenomenal num-

bers. A single sweep of the net would set up between five and 15, and I am sure numbers must have run into many thousands. In early July the incredible heat wave was at its height and I tended to work the area between 9.30 a.m. and 11.30 a.m. and then after 4.30 p.m. In the morning the *jurtina* would be sitting on the thistles in large numbers sunning themselves and were easy to work, but about midday numbers dropped dramatically. Presumably they went deep into the grass to escape the intense heat, from where they were difficult to disturb. After about 4.30 p.m. they once more became lively as the heat abated.

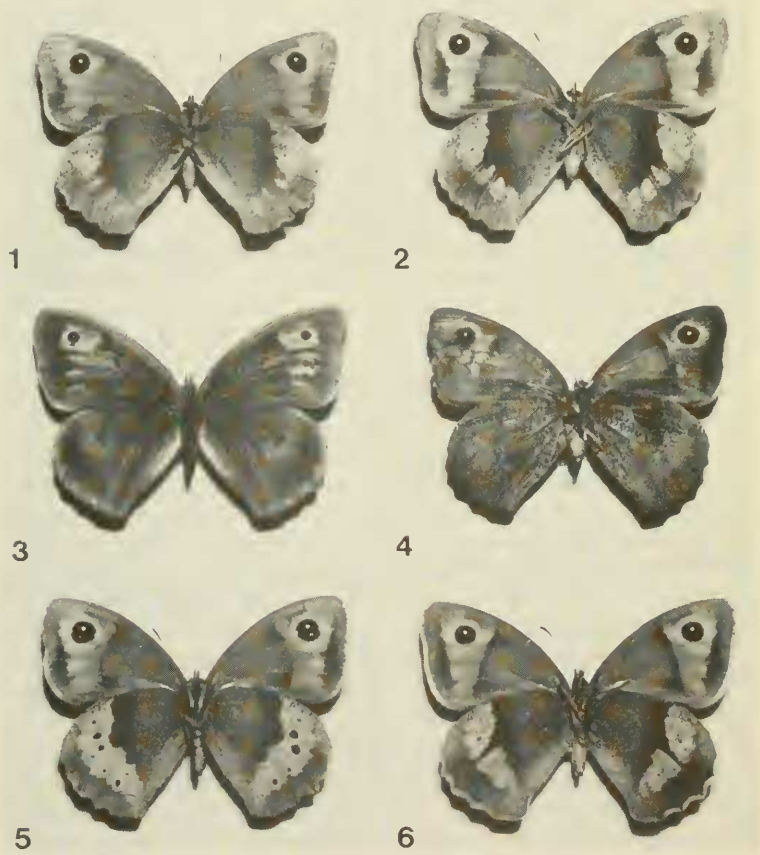

Fig. 1: ab. *postmultifidus* 1982 Lipscomb. Fig. 2. ab. *postmultifus* 1983 Lipscomb. Fig. 3: ab. *antiaurolancia* Leeds, 1983. Fig. 4 ab. *postatrescens* Leeds + *antinigromargo-glabrata* Leeds, 1983. Fig. 5: ab *postexessa*, Leeds, 1983. Fig. 6: ab. *fracta* Zweigelt, 1983.

I first worked the area on the 24th June, when the males were fresh and just emerging. But there were few females then and no variation, so I next went over the fields from 8th-12th July, at

which time the colony was at its peak. On the 8th I took a female ab. *postmultifidus* which was the most extreme I have caught. As it was damaged I set it up to lay, but despite its producing over 150 eggs, no larvae survived as they all became desiccated.

On 9th I spent a couple of hours in the field with John Simner. I took a female ab. *antiaurolancia* Leeds (fig. 3) which is quite frequent in the area, and a female ab. *antiobscura* Leeds, and J. S. captured a fine female ab. *postexcessa* Leeds (fig. 5). I also took a worn male ab. *fracta* Zweigelt. On 10th we again worked the area, when I took a female ab. *postmultifidus* and a female with homeosis on one hindwing (an orange dash running through the pale band on the underside), and J. S. took some interesting examples of ab. *excessa* Leeds.

On 11th I spent a couple of hours in the fields in the morning, taking a good female ab. *postmultifidus* (fig. 2). Donald Russwurm arrived in the afternoon to join in the hunt. The first *jurtina* he saw (and caught) was *postmultifidus*! I took five female ab. *antiexcessa*, Leeds, not an uncommon form in this colony.

The morning of the 12th was the high point of the season. After about an hour of searching I saw a dark-looking *jurtina* alight on a thistle an arm's length away. I missed but it obligingly landed at my feet. I slammed my net on it and was amazed to find it was ab. *postatrescens* Leeds, rare enough in itself, but this one also had a black border to the forewings and was shiny all over so it is also ab. *antinigromargo-glabrata* Leeds: a fine insect indeed (fig. 4)! That morning I also took a female ab. *fracta* from thistles (fig. 6).

Working the species in this colony was exhilarating, not least because of the number of false alarms. A shadow cast by a piece of grass onto a resting *jurtina* turned it into ab. *fracta* and when *jurtina* lifts its wings, the veins throw a shadow making it look convincingly like ab. *postmultifidus*. I must have seen a good 20 suspected ab. *postmultifidus* in 1983, only to find the bands disappearing on closer inspection!

On the afternoon of 12th, the fields were cut for hay, so ending the season. As the grass was lying on the ground I saw several *jurtina* laying on it – a sad and pointless procedure.

It is interesting to note that on comparison with most specimens of ab. *postmultifidus* that I have seen in other collections, the Stour Row examples are less distinct, with the bands tending to be broader and more feathery.

It was a wonderful experience to see insects in such profusion as was *jurtina* in this area, and to take extreme aberrations with almost clockwork regularity. From my notes I see that I worked the area for a total of some 12 hours during 1983, taking four major and many minor aberrations. This was so regular that having caught one I could almost guarantee not to catch another until I had worked my three hour stint.

A note on breeding this insect my be of use. I put the caught female in a cylindrical netting cage about one and a half foot high by one foot in diameter. In this I stand a jar of thistles with a little grass. I always keep the cage as hot as possible, either by hanging it in a sheltered spot in the sun, or in a greenhouse when the sun is weak. The female will lay readily after a couple of days on the top of the cage. She pays no attention at all to the grass, which is extraordinary as I have seen *jurtina* laying on a carefully chosen bit of grass in the wild. The eggs are easily scraped off into a plastic box and hatch in about 10 days. I keep my larvae in plastic boxes with cut grass. In 1983 I put them in a plastic box with two sides of netting and they all desiccated before I realized. The adults pair readily in a shady spot. The species is strangely difficult to breed, as the larvae, if potted out, just disappear or, if boxed up, die of disease. Obviously they require conditions which are not easily simulated at home, although what these are I cannot say, because in nature the species occurs in such diverse habitats.

References

Ford, E. B., 1975 *Butterflies*, 368 pp., 72 pls (48 col.), 32 maps. London.

Lipsomb, G., 1980. A new form of *M. jurtina*. *Entomologist's Rec. J. Var.* **92**:205.

HYPENA CRASSALIS F.: BEAUTIFUL SNOUT IN BEDFORDSHIRE. – On the 6th July 1984, *H. crassalis* was observed by myself and Mr. A. Riley to be locally common at Aspley Heath in Bedfordshire. We took several moths at dusk and later more came to M. V. Local man, Mr. J. Barnwell, has taken the moth here in previous years, but its presence in Bedfordshire has until now seemingly escaped being recorded. I note from the distribution map for this species in Volume 10 of M.B.G.B.I. that this site is quite a leap into the void shown around East Anglia. – K. F. WEBB, 2 Kingsdown Avenue, Luton, Beds LU2 7BU.

CELASTRINA ARGIOLUS L.: HOLLY BLUE OVIPOSITING ON HAWTHORN. – Upon visiting Hollingbury Castle Down above Moulsecoomb in East Sussex on 23.v.84 I observed a female Holly Blue investigating flower-sprays of hawthorn (*Crataegus monogyna* Jacq.). Here it was seen to oviposit three times before my presence disturbed it and one of these eggs I managed to locate on the sepal of a ripening bud. Judging from the few works at my disposal this foodplant is little known and so I consider it worth mentioning. *Pyracantha*, also a member of the *Rosaceae* has it seems been noted as having been visited by female *argiolus*. – D. A. PRANCE, 23 Brunswick Road, Kingston Hill, Kingston-upon-Thames, Surrey.